GENERAL CATALOGUE





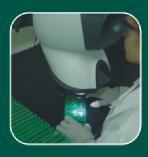














INSTRUMENTS WITH COMBINED FUNCTIONS

Diversity combined with Versatility

TEMPERATURE

Frozen

TC-900Ri Thermometer + Thermostat

TC-900Rx clock Thermometer + Thermostat + Weekly defrost scheduling + Internal Clock + Connection with Sitrad.

TC-910R Thermometer + Dual-stage Thermostat + Hour Meter

TC-920Ri Thermometer + Thermostat + Digital input + Intelligent Setpoint

TC-940R Thermometer + Thermostat + Temperature-triggered defrost + Alarm

Refrigerated

MT-512Ri/MT-512C Thermometer + Thermostat

MT-512Ri plus Thermometer + Thermostat + Connection with Sitrad®

MT-512R LOG Thermometer + Thermostat + Internal datalogger + Connection with Sitrad®

MT-516CVT Thermometer + Thermostat + Cyclic timer + True RMS voltage monitor

MT-516RVT in plus Thermometer + Thermostat + Cyclic timer + True RMS voltage monitor + Connection with Sitrad®

RT-607Rx plus Thermometer + Thermostat + Weekly event scheduling + Internal Clock + Connection with Sitrad*

MT-543Rx plus Thermometer + Thermostat + Cyclic timer + Internal buzzer + Connection with Sitrad®

Auto PID plus PID controller with analog and PWM outputs + Alarm + Connection with Sitrad®

TI-33Ri plus Thermometer with up to three sensors + Connection with Sitrad®

TEMPERATURE AND HUMIDITY

MT-531Ri plus Thermometer + Thermostat + Hygrometer + Humidity switch + Configurable auxiliary output + Connection with Sitrad® AHC-80 plus Thermometer + Thermostat + Hygrometer + Humidity switch (up to 100% RH) + Connection with Sitrad®

PRESSURE

PCT-100 Pressure gauge + Single-stage pressure switch

PCT-400 Ri plus Pressure gauge + Rack-mount four-stage pressure switch + Connection with Sitrad®

PCT-420 Rx plus Pressure switch with four independent stages + Connection with Sitrad®

PCT-1600 plus Pressure Gauge + Rack-mount sixteen-stage pressure switch + Connection with Sitrad®

TIMERS

PROGS Hourly scheduler + Internal clock

TEMPUS Timer + Cyclic timer

SOLAR HEATING

MICROSOL/MICROSOL R. Thermometer + Thermostat + Antifreeze System

MICROSOL II plus Thermometer + Thermostat + Antifreeze System + Support output (electric, gas or diesel) + Connection with Sitrad®

VOLTAGE

PhaseLOG plus Voltmeter + Single-phase, Two-phase, Three-phase True RMS voltage monitor + Programmable under- and over-voltage protective devices + Protection against phase fault and inversion + Modular and angular asymmetry + Internal datalogger + Connection with Sitrad*

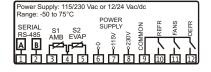
EnergyLOG plus Single-phase meter for electric magnitudes: True RMS voltage + True RMS current + power factor + real power + reactive power + apparent power + Connection with Sitrad®

FROZEN



TC-900Riclock

For cooling and defrosting, works with two sensors, being one for ambient temperature and other fixed to the evaporator that controls defrost ending. It has an internal clock for real-time programming of up to eight independent defrost operations per day, with weekly schedule, and permanent internal battery to ensure clock synchronization for many years, even in case of power failure.



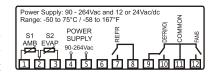
Application examples: walk-in and display freezers.

Dimension: 71 x 28 x 71 mm.



TC-900Ri Power

Temperature controller for freezers that automates the defrosting processes in accordance with the installation's necessities, providing greater energy economization. With a powerful relay of 16A, it directly commands compressors of up to 1HP and has a keyed power supply (universal port of 90 to 264 VAC). The defrost exit has a 10 A current capacity, as well as also having Normally Closed (NC) contact available, allowing the condenser ventilators to be turned off when the defrosting operation is being carried out by hot gas. It also has indicators in °C and °F and digital filters, which have the purpose of simulating an increase in mass in the environment sensor (S1), thereby increasing its response time (thermal inertia).]

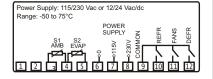




TC-900Ri

For cooling and defrosting, works with two sensors, being one for ambient temperature and other fixed to the evaporator that controls defrost ending. Application examples: walk-in and display freezers.

Dimension: 71 x 28 x 71 mm.



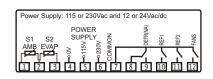


TC-910Ri

It features four control outputs, two for cooling (dual-stage), one for defrosting, and one for evaporator's fans. The defrost output relay has a dual-throw contact (NO and NC) that can be used to switch off the condenser's fan during defrost, when it is performed by means of hot gas. Besides, it has two independent hour meters for signaling maintenance intervals of compressors, allowing to be reinitialized when the preset operating time is reached. Additionally, it allows presetting a pre-defrost time, adjustable for the collection of gas before starting the defrost phase, thus increasing system efficiency.

Application examples: walk-in and display freezers.

Dimension: 71 x 28 x 71 mm.





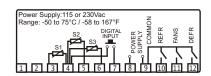
TC-920Ri

It controls evaporator's fans, besides managing defrost cycles. It can work with up to three sensors, being two for temperature measurement and other fixed to the evaporator that controls defrost ending and fan return.

It features one digital input that can receive external pulses to synchronize defrost starting or simply to signal the status of chamber door. It enables a significant reduction of power consumption because it allows the programming of two setpoints: normal and saving. This is possible by the use of the third sensor, which measures the ambient temperature in the air return and selects the active setpoint based on the temperature difference between return and supply sensors (S3-S1).

Application examples: walk-in and display freezers.

Dimension: 71 x 28 x 71 mm.



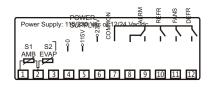


TC-940Ri

It only performs defrost cycles when required, based on evaporator temperature. It provides higher efficiency, lower power consumption, and has a fourth relay to operate alarms or to turn lights off.

Application examples: walk-in and display freezers.

Dimension: 71 x 28 x 71 mm.



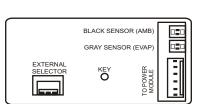


TC-900RG2 Slim

Single-module specific thermostat for beverage displays. It has two sensors (for room temperature and thaw management) and three control outlets (for a compressor, a fan, and a thaw resistor). Its internal relay for the 16A/250Vac compressor allows it to directly control motors up to 1HP without the need for a contactor. It has an internal 90 to 264Vac universal power supply unit. In addition, it is encased in a small-size case and its display allows the temperature to be seen from afar.

Example of applicatin: beverage displays.

Dimension: 90 x 44 x 44 mm.



REFRIGERATED

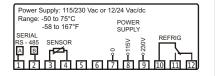


MT-512Ri plus

Natural defrost function by means of compressor shutdown and permanent ventilation, presents one control output and programmable cooling and defrost times. Available in 16A version for direct operation of compressors up to 1 HP.

Application examples: walk-in and display coolers.

Dimension: 71 x 28 x 71 mm.





MT-512R LOG

Offers the same features as MT- 512Ri plus and has an internal memory for data storage (datalogger), which enables you to record the temperature gauged and the control exit status at user-defined time intervals. Therefore, it allows for ongoing data collection without the need for a permanently connected computer, considering the information can be later sent via RS-485 serial communications.

Applications: supermarkets, perishable loads, and cold storage chambers.

Dimension: 71 x 28 x 71 mm.



Sitrad

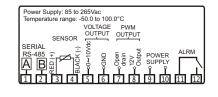


AutoPID plus

For cooling and heating processes, uses PID control (Proportional -Integral - Derivative), which allows controlling the temperature with high degree of stability. It has an analog output from 0 to 10 Vdc and PWM output.

Application examples: cold storage chambers, stoves, laboratories, and injection machines.

Dimension: 71 x 28 x 71 mm.

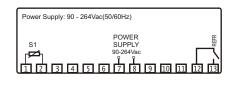




TIC-17G

Thermostat applied for control of both heating and cooling systems which has a single key to adjust all of its parameters. The difference lies in its dimensions that offers better visualization at a distance.

Dimension: 90 x 44 x 44 mm.





TIC-17S 76 x 60 x 38 mm



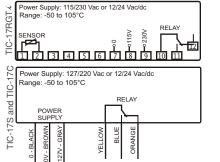
TIC-17C ⊗ 60 x 40 mm deep.



TIC-17C, TIC-17S e TIC-17RGT Easy to adjust and easy to install thermostats. They can be

applied to control either heating or cooling. They feature a single key to allow adjusting all their parameters.

Available in 10A (TIC-17S and TIC-17C) and 16A (TIC-17RGT i and TIC-17C) versions.









MT-511R i and MT-511C

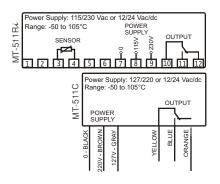
Thermostats having functions to allow serving many cooling and heating applications.

Available in 10 A (MT-511C) and 16 A (MT-511Ri) versions.

MT-511RJ

Temperature controller and indicator that records maximum and minimum temperatures ranging from 100 to 600 C°, with type J thermocouple sensor.

Dimension: 71 x 28 x 71 mm.

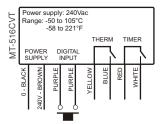




MT-516CVT

Thermometer/thermostat with integrated cyclic timer and digital input. It is distinguished by its True RMS monitoring feature (from 90 to 280 Vac) that prevents the compressor from being damaged due to voltage fluctuations. It features programmable adjustment for minimum and maximum operating voltages.

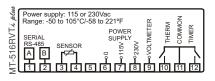
Application examples: milk cooling tanks.





MT-516RVTi plus

It has the same functions as MT-516CVT. Application examples: milk cooling tanks. Dimension: 71 x 28 x 71 mm.





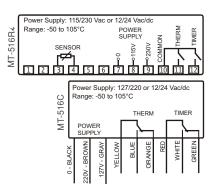
MT-516R*i* 71 x 28 x 71 mm

MT-516R i and MT-516C

For controlling and indicating temperature, they can be configured for cooling or heating.

They feature an integrated cyclic timer.

Application examples: heat pumps and milk coolers.





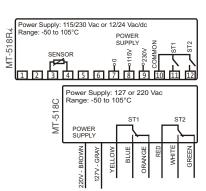
MT-516C ⊗60 x 40 mm deep.

₹*i*

MT-518R i and MT-518C

Double-stage controller with two outputs that can be configured both for cooling or heating. Its 2nd output can also be configured for intra or extra-range alarm.

Application example: air conditioning systems.





MT-518R*i* 71 x 28 x 71 mm

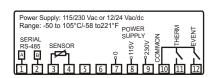




RT-607Ri plus

Digital temperature controller attached with a weekly schedule. Allows up to four events to be configured, with programmable start and end, which can be on a daily, weekly basis or divided into workdays and weekends. It contains a timing programmer in real time allowing and a permanent internal battery to ensure the clock synchronization.

Dimension: 71 x 28 x 71 mm.





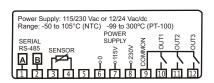
MT-543Ri plus

It features three stages, and can be applied either for cooling or heating. It allows the second stage to be programmed as alarm (within or outside range), and the third stage as cyclic timer.

Besides, it has an internal audible alarm (buzzer) and accepts two types of sensors: NTC thermistor (-50 to 105 °C) or PT-100 (-99 to 300 °C).

Application examples: industrial furnaces and blood preservation chambers.

Dimension: 71 x 28 x 71 mm.



TEMPERATURE AND HUMIDITY CONTROLLERS

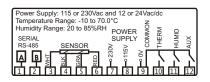


MT-531Ri plus

Includes an auxiliary output for operation as a dual stage thermostat or humidistat. It can also operate as an intra or extra-range alarm.

The MT-531Ri plus also includes an internal buzzer that can be configured as an intra or extra-range alarm of temperature and humidity.

Dimension: 71 x 28 x 71 mm.





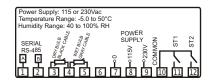
AHC-80 plus

It measures air moisture based on psychometrics (dry bulb and wet bulb). It features an integrated temperature controller, and allows configuring for dual-stage of humidity.

It operates in the range from 40 to 100% RH and from -5 to 50 °C.

Application examples: air conditioning and storage of fruits and flowers.

Dimension: 71 x 28 x 71 mm.



FOR EXCLUSIVE USE IN POULTRY AND PIG RAISING



HUMITECH II plus

With temperature and humidity sensors, it simultaneously controls up to three fan groups, gas exhaust system, nebulization, temperature and power failure alarms, shade opening and closing, and controls the heating system during winter. It features nine relay outputs, being easily installed with DB9 (sensors) and DB15 (control outputs) connectors.

Dimension: 97,3 x 148 x 54,6 mm.



HUMITECH III

It controls up to four groups of fans, besides the minimum ventilation. It features controls for two nebulization stages, one for cooling (with shutdown in case of high humidity), and another for humidifying (in case of low humidity). Besides, it features automatic cold/warm, and the possibility to operate the heating control together with cooling stages.

Dimension: 97,3 x 148 x 54,6 mm.







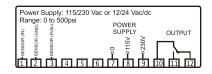
PRESSURE CONTROLLERS



PCT-100Ri

Single-stage, from 0 to 500 psi, it can be applied either in cooling systems, both in suction and exhaust, or in air compressors and water pumps control. It is compatible with ammonia water.

Dimension: 71 x 28 x 71 mm.



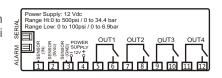


PCT-400Ri plus

For cooling centrals, it features four stages and alarm output. It operates in independent pressure ranges, from 0 to 100psi (suction) or 0 to 500psi (exhaust). It is compatible with ammonia water.

Application examples: cooling racks.

Dimension: 71 x 28 x 71 mm.



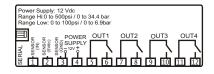


PCT-420Ri plus

For pressurization and/or depressurization, it features four outputs that can be configured for pressure control, with the last two being able to be additionally configured as cyclic timer or alarm. The outputs configured for pressure control also feature an internal hour meter to activate the maintenance alarm and to perform automatic rotation of load activation. It is compatible with ammonia water.

Application examples: water pumps, cooling systems, and fire prevention systems.

Dimension: 71 x 28 x 71 mm.

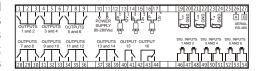




PCT-1600 plus

Pressure controller featuring 16 outputs (double suction and discharge) for mounting racks, which includes Sitrad connection; 16 configurable hour meters (working hours for each output); 3 pressure transducers (control) and 3 temperature sensors (safety); 6 configurable digital inputs; 3 operation modes for the compressors (sequential, according to capacity, and rotative output actuation according to operation time). It also enables you to configure night and day set points, allowing a great energy saving.

Dimension: 160 x 90 x 66,27mm.





VOLTAGE MONITORS

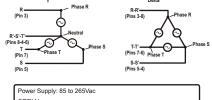


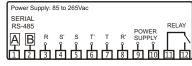
PhaseLOG plus

This instrument uses True RMS voltage measurement method to monitor power quality and to protect single-phase, two-phase and phase-three electric installations against under- and over-voltage, angular and modular asymmetry, and phase fault and inversion. It features internal real-time clock and memory to store voltage values for each phase of the electric grid at userdefined time intervals (data-logger). It can be used either for commercial or residential applications.

Application examples: power quality monitoring, motor protection, electric panels, and other three-phase and single-phase equipment.

Dimension: 71 x 28 x 71 mm.







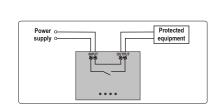
Monivolt

This instrument monitors and protects electric equipment, being suitable for industrial, commercial or residential applications. By means of True RMS measurement method, it performs voltage monitoring, being able to protect single-phase loads against under- and/or over-voltage. Besides, it features an automatic timer that waits three minutes before reactivating its output. This function ensures the protection of equipment the need a minimum shutdown time (e.g., compressors).

Application examples: protection of single-phase electric equipment. Dimension: 75 x 60 x 22,5 mm.







TIMERS

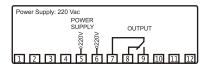


PROGSI

Scheduler with real-time clock that allows configuring up to four events for each weekday, through the definition of start and end times for each one. It has a permanent internal battery to ensure clock synchronization for many years, even in case of power failure.

Application examples: equipment that need to operate in scheduled times.

Dimension: 71 x 28 x 71 mm.



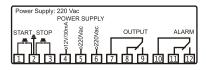


TEMPUSI

It operates as cyclic timer or as process timer, which can be triggered by external keys. It features configurable time base.

Application examples: equipment that need control of process time.

Dimension: 71 x 28 x 71 mm.





ICE MATIC and CICLOMAT

These timers are indicated for all types of cyclic events.

Available in 16A version for direct operation of compressors up to 1 HP.

Dimension: 100 x 73 x 37 mm.

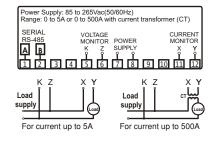
POWER MONITOR



EnergyLOG plus

Instrument for measuring and monitoring the major parameters regarding energy quality on single-phase electrical installations. By means of RMS voltage and current measurements (True RMS), it calculates the real, reactive and apparent powers, in addition to the power factor and accumulated power (consumption). It features internal real-time clock and data-logger, which allows storing the measured values to its memory at user-defined time

Dimension: 71 x 28 x 71 mm.



INDICATORS



Penta III

Portable thermometer that monitors and indicates the temperature in five different points. Due to its ample versatility, it is excellent for measuring temperature in central, automotive, and wall-mounted air conditioning equipment; freezers; for frigorific balancing of evaporators; within vehicles and rooms; machines in general; of oil, water, and other liquids. It is also efficiently employed in medical and hospital equipment.



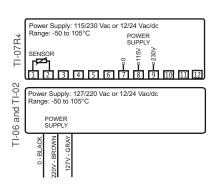
TI-07Ri 71 x 28 x 71 mm

76 x 60 x 36 mm



TI-02, TI-06 and TI-07R i

Thermometers featuring decimal display and OFFSET adjustment key. They are excellent for application in frigorific equipment, machine tools, stoves, furnaces, automotive, air-conditioned rooms, and food, chemical and drug industries.



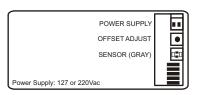
INDICATORS



BIGTHERM

It features dimensions and design allowing to view the temperature at some distance. It has an OFFSET adjustment key, which allows displacing the temperature indication.

Dimension: 91 x 45 x 20 mm.

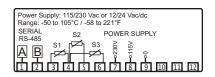




TI-33Ri plus

With up to three sensors, presents differential temperature calculations and their average.

Dimension: 71 x 28 x 71 mm.

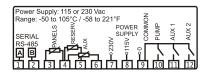


SOLAR HEATING



MICROSOL II plus

Differential temperature controller with three sensors that works in the control of water circulation pump. It features functions to prevent water from overheating or freezing within the piping. It has two support outputs, which may be electric-, gas-, or diesel-fired, or to schedule the filtration of the swimming pool. Besides, it features a real-time hourly scheduler that allows configuring a weekly schedule having up to four daily events, and permanent internal battery to ensure clock synchronization for many years, even in case of power failure. Dimension: 71 x 28 x 71 mm.



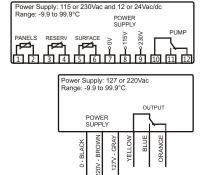


Microsol ⊗ 60 x 40 mm deep

MICROSOL and MICROSOLRi

Differential thermostats for solar heating that control water circulation pumps based on the temperature differential between the solar panels and the thermal tank or swimming pool. It features functions to ensure better collection of solar power, to prevent water from freezing within the piping during winter, and to control its overheating.

Available in 16A version for direct operation of pumps up to 1 HP.





Microsol Ri 71 x 28 x 71 mm



ANASOL

Economy version of the differential temperature controller for pumped solar heating systems. It features a function to prevent the water from freezing in the pipes, and a 16 A relay for direct operation of circulation pumps up to 1 HP. It allows operating them manually or automatically by means of a three-position switch. Dimension: $73.5 \times 100 \times 37$ mm.



SENSORS



Roller Bag Sensor

Temperature sensor* covered with a stainless steel shell, cold-molded on a silicon-rubber sleeve, which provides complete sealing, besides offering ruggedness and protection against radiation. It is water-resistant, developed and produced by Full Gauge Controls to be used exclusively with its instruments, having the batch number and manufacturing date printed on its cable, clearly and visibly certifying its origin. Operates in the range from - 50 to 105 °C.

- Patent pending for the process, product and trademark.

The cables included with Full Gauge Controls® products can be supplied in different lengths. Please consult by the time of ordering.



Pressure Transducer SB49

Manufactured of stainless steel, it has high stability and accuracy, being immune to interference and vibration. Operates between - 40 and 125 $^{\circ}$ C, for pressures ranging from 0 to 100 psi or from 0 to 500 psi. It has a male NPT $\frac{1}{4}$ " fitting, featuring both voltage output signal from 0,5 to 4,5 Vdc and current output signal from 4 to 20 mA.

It allows measuring pressure in the following fluids: compressed air, water, oil, and cooling gases (including ammonia water).

INNER-MEMORY EQUIPPED INSTRUMENTS

Equipped with a real-time clock and inner memory to store data for user-defined time periods (datalogger).



MT-512R ∠ LOG Chilled product thermostat



PhaseLOG plus Voltage monitor



EnergyLOG plus
Power monitor

TH-01

Large-sized thermo-hygrometer. It indicates ambient temperature and humidity, and can be viewed from some distance, which makes easier to monitor the variables.

It is indicated for mounting on flat surfaces (superposed).



Dimension: 645 x 285 x 60 mm.



REMOTE MANAGEMENT SOFTWARE

Sitrad



More than just automating, Sitrad® innovates in the management of cooling, heating, air conditioning, and solar heating systems by means of its most distinguishing feature: connectivity. Besides allowing to monitor installations locally, this unique and free Software allows the remotely management of Line instruments connected to equipment from many segments, being them industrial, commercial or residential.

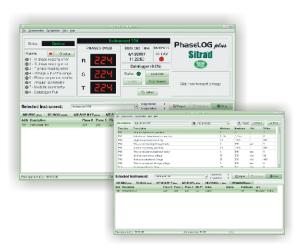
Like Sitrad®, besides obtaining a significant reduction in electric power consumption, the user can continuously evaluate, configure, and store data on temperature, humidity, and pressure, among others. And, by means of a secure connection (client-server), the user can change the operating parameters of instruments, with full precision and in a practical way. By means of charts and reports, and with messages sent by the software to registered mobile phones and e-mails, in the event the variables are not within the established standards, the user can take over the control of his installation with all the easiness, comfort and safety that only Sitrad® can offer.

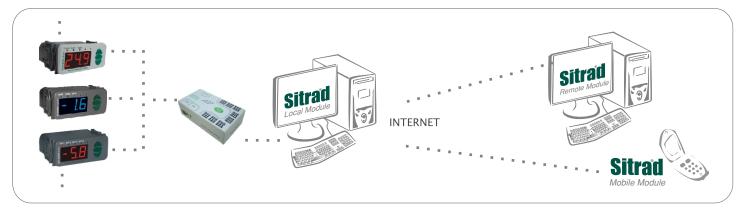
Sitrad *comprises different modules: Local, Remote and its most recent evolution, Mobile.

- **-Local:** must be installed in the computer to which the instruments are connected via interface;
- **-Remote:** must be installed in the computer that will remotely manage the installation, via Internet;
- -Mobile: manages facilities via cell phone, communicating with the local module.

With Mobile, the user has another option for remote management. Without using a computer, it provides even easier remote installation management.

It is the connectivity allowing to take over the control, anytime, anywhere.





www.sitrad.com



Besides Sitrad® full download, information, tips, and links, the website www.sitrad.com makes available two different ways of learning the operation of the Software.

By means of the link "Operate Sitrad" it is possible to choose to download either the Remote Module, to operate an actual installation connected to operational controllers in our labs, or the Trial Module that generates random data based on the virtual operation of a controller.

In the website, it is also possible to download all other Sitrad® Modules, to learn about plus line products that have connectivity with Sitrad®, and to contact us.

Connection with Sitrad®



TC-900Ri clock

Temperature controller for display freezers.

Allows scheduling of up to eight daily defrosts.



TI-33Ri plus

Thermometer with up to three sensors, presents differential temperature calculations and their average.



MT-512Ri plus

Temperature controller for display coolers with command output and defrost function.



PhaseLOG plus

Instrument for monitoring and protecting singlephase, two-phase and three-phase electrical installations.



MT-512Ri LOG

Temperature controller with internal datalogger.



EnergyLOG plus

Instrument for measuring and monitoring the major parameters regarding energy quality on single-phase electrical installations.



AutoPID plus

Temperature controller for cooling and heating processes with proportional output.



MICROSOL II plus

Differential temperature controller, with three sensors, for solar heating systems.



PCT-400Ri plus

Pressure switch for high or low pressures, controls up to four compressors or fans.



AHC-80 plus

Psychrometric temperature and relative humidity controller, ideal for environments with high humidity content. Operates in the range from 60 to 100% RH.



PCT-420Ri plus

Pressure controller with four independent outputs.



Humitech II plus

Temperature and humidity controller, exclusive for poultry and pig raising.



MT-543Ri plus

Controller for cooling or heating with three stages and internal buzzer.



MT-531Ri plus

Temperature and humidity controller with an auxiliary output for operation as a dual stage thermostat or humidistat. It can also operate as an alarm.



MT-516RVTi plus

Controller for cooling or heating with mains voltage monitor.



PCT-1600 plus

Pressure controller featuring 16 outputs (double suction and discharge) for mounting racks, with connection to Sitrad®.



RT-607Ri plus

Thermostat for cooling or heating, allows daily scheduling.



MOD64

New

Expansion module with four digital outputs and six inputs, being four digital (two voltage and two dry-contact), and two analog. It is used as a supplement in the automation line, working together with the controllers. It is able to monitor the operation of motors, compressors, and fans, besides checking door opening and closing. Additionally, four relay outputs allow activating switches, alarms, and lights, among other actions. It is developed to be fitted in DIN rails.

Dimension: 115 x 90 x 40 mm.



FG-Wi Converter

New

Transmitter (or receiver) that converts RS-485 data to radiofrequency (RF) and vice-versa, such that Line controllers can communicate wirelessly with Sitrad®. Using this converter, installations communicating with Sitrad through twisted pair (RS-485) can change to wireless communication.



FG-Wi Router

New

FG-Wi (repeater) network, as well as the identification of wireless networks/routes (router), thereby avoiding interference between wireless networks that are close by, or in other words, in the same area of coverage. It is positioned in the network in a way that the FG-Wi Converters (SLAVE), those that are beyond the reach of the FG-Wi Converter (MASTER), are able to communicate with the Full Gauge (FG-Wi) wireless network.

This Device allows an increase in the reach of a wireless



31 x 81 x 63 mm

Interfaces



Interfaces are devices used to connect up to 256 place. Line digital instruments to Sitrad. It performs the communication between the controllers and the computer, by means of converting RS–485 signals from the controllers to RS–232 or USB of the computer. The CONV256 dual-voltage interface is connected to the computer using DB9 or USB cables; CONV32 is connected to the computer by a USB cable.